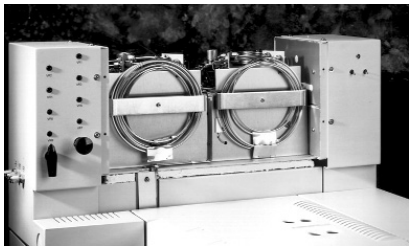
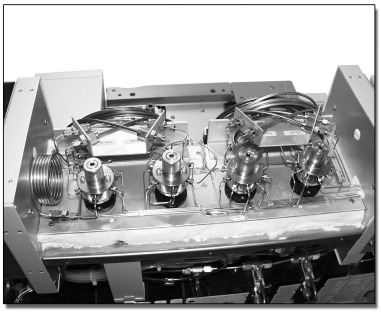
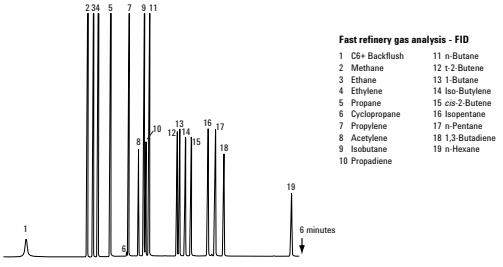
# Application 583D-00
# Agilent Fast Refinery Gas Analyzer
Technical Overview

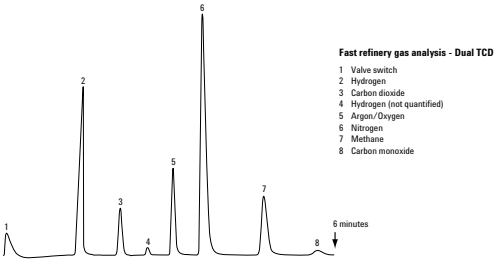


## Application Highlights

- Expect an analysis time of approximately 6 minutes.
- A Flame Ionization Detector (FID) to detect the C1 through C7 paraffins and olefins to a lower detection limit of 20 ppm, except for trace peaks eluting on the tail of a major component.
- A Thermal Conductivity Detector (TCD) is used to detect hydrogen in a nitrogen carrier to a lower detection limit of 100 ppm.
- A second TCD is used to detect carbon dioxide, ethane, ethylene, acetylene, hydrogen sulfide, $O_2$/Ar, nitrogen, methane, and carbon monoxide to a lower detection limit of 200 ppm except for carbon monoxide (400 ppm), and hydrogen sulfide (500 ppm).






## Optional Configurations

- Refinery gas analysis with trace sulfurs by FPD or SCD
- Additional boiling point column for the analysis of heavy hydrocarbons (C1–C30)
- Standard analysis with the addition of trace CO by methanizer
- Custom analyzer for performing ASTM D2163, ASTM D1945, ASTM D2712, and ISO 7941
- High temperature injection for heavy fractions
- High temperature reactor effluent with percent level water
- TCD/TCD/MSD for the analysis of reactor effluent gases
- Valves for the injection of pressurized liquid samples.

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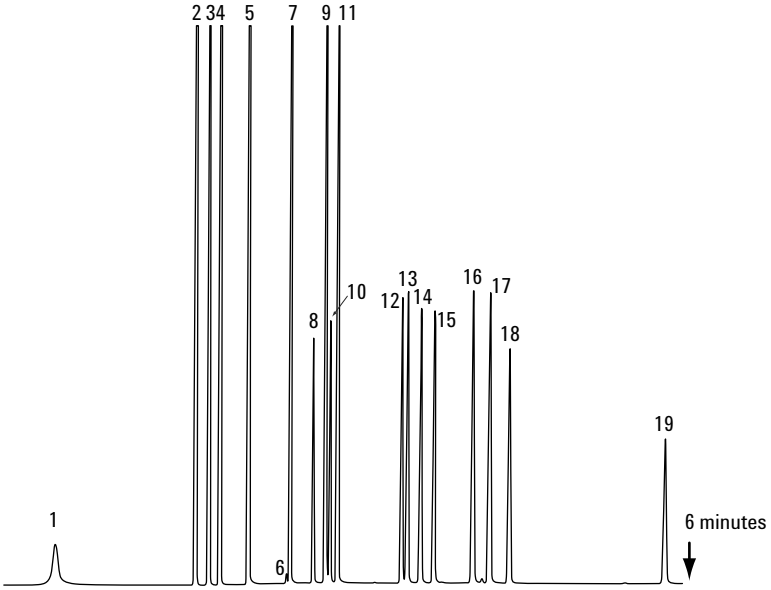
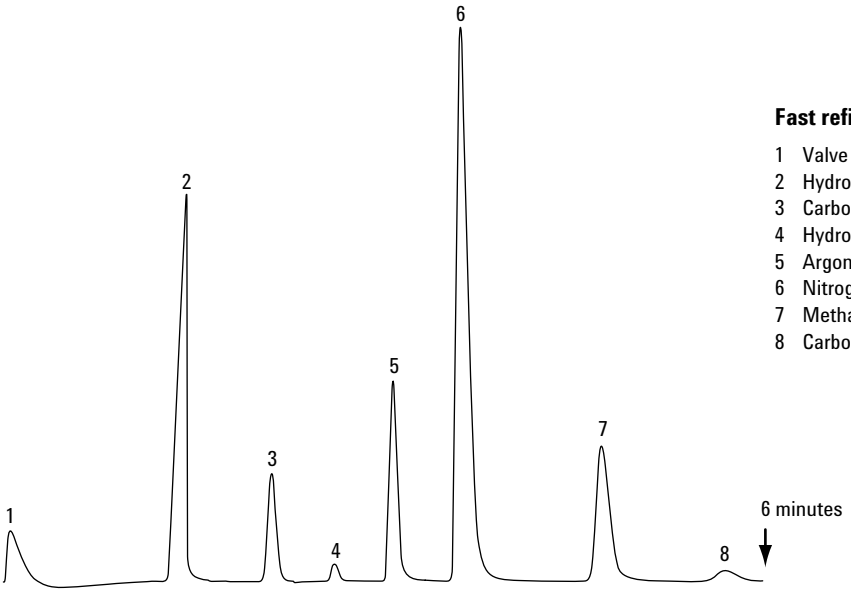



**Fast refinery gas analysis - FID**

1 C6+ Backflush
2 Methane
3 Ethane
4 Ethylene
5 Propane
6 Cyclopropane
7 Propylene
8 Acetylene
9 Isobutane
10 Propadiene
11 n-Butane
12 t-2-Butene
13 1-Butane
14 Iso-Butylene
15 *cis*-2-Butene
16 Isopentane
17 n-Pentane
18 1,3-Butadiene
19 n-Hexane




**Fast refinery gas analysis - Dual TCD**

1 Valve switch
2 Hydrogen
3 Carbon dioxide
4 Hydrogen (not quantified)
5 Argon/Oxygen
6 Nitrogen
7 Methane
8 Carbon monoxide

**FID and TCD output from Agilent Fast Refinery Gas Analyzer.**

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Printed in the USA
December 6, 2002
5988-6741EN

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